



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
BIN C15700
Seattle, WA 98115-0070

Refer to:
OSB2001-0223-FEC

October 2, 2001

Mr. Lawrence C. Evans
Chief, Regulatory Branch
US Corps of Engineers, Portland District
P.O. Box 2870
Portland, OR 97208-2870

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Act
Essential Fish Habitat Consultation for the Maxfield Creek Scour Protection Project
(Corps No. 2001-00444)

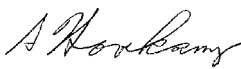
Dear Mr. Evans:

Enclosed is a biological opinion (Opinion) prepared by the National Marine Fisheries Service (NMFS) pursuant to section 7 of the Endangered Species Act (ESA) on the effects of the proposed Maxfield Scour Protection Project, in Benton County, Oregon. In this Opinion, NMFS concluded that the proposed action is not likely to jeopardize the continued existence of ESA listed Upper Willamette River chinook salmon (*Oncorhynchus tshawytscha*) or Upper Willamette River steelhead (*O. mykiss*), or destroy or adversely modify designated critical habitats. As required by section 7 of the ESA, NMFS included reasonable and prudent measures with non-discretionary terms and conditions that NMFS believes are necessary to minimize the potential for incidental take associated with the action.

This Opinion also serves as consultation on Essential Fish Habitat pursuant to section 305 (b) of the Magnuson-Stevens Fishery Conservation and Management Act and implementing regulations at 50 CFR Part 600.

If you have any questions regarding this letter, please contact Tom Loynes at 503.231.6892 or Ben Meyer at 503.230.5425 of my staff in the Oregon Habitat Branch.

Sincerely,


for

Donna Darm
Acting Regional Administrator



Endangered Species Act - Section 7
Consultation
and
Magnuson-Stevens Act
Essential Fish Habitat Consultation

BIOLOGICAL OPINION

Maxfield Creek Scour Protection Project
Kings Valley Highway
Benton County, Oregon

Agency: U.S. Army Corps of Engineers

Consultation Conducted By: National Marine Fisheries Service,
Northwest Region

Date Issued: 10/2/01

Refer to: OSB2001-0223-FEC

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1. ENDANGERED SPECIES ACT

1.1 Background

On September 4th, 2001, the National Marine Fisheries Service (NMFS) received a request from the U.S. Army Corps of Engineers (USCOE) for Endangered Species Act (ESA) section 7 formal consultation for stabilization of the Maxfield Creek bank. The project involves the repair of a localized scour next to a bridge abutment and the associated erosion extending upstream 80 feet. A steel wall will be installed next to the bridge abutment in the scoured area for stabilization and protection. Additionally, approximately 100 yards of metric class 350 riprap will be placed below the ordinary high water elevation. Root wads will be incorporated into the riprap to provide complex stream habitats and divert the stream back to the center of the bridge. Willow cuttings will be planted in the riprap voids. All disturbed areas will be seeded with a native mix of grasses, trees and shrubs. The project applicant is the Oregon Department of Transportation (ODOT). The ODOT designed the project and will construct the project with maintenance staff. The Federal nexus for the ESA consultation is the USCOE fill permit required under Section 404 of the Clean Water Act.

Maxfield Creek is a tributary of the Luckiamute River, which flows into the Willamette River. The project site is at highway mile point 23.59 near the town of Philomath, Benton County, in Township 10S, Range 6W.

The USCOE determined that the proposed action is likely to adversely affect the Upper Willamette River (UWR) chinook salmon and steelhead which are present in the project area. The effects determination was made using the methods described in Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale (NMFS 1996).

This biological opinion (Opinion) is based on the information presented in the USCOE/DSL Joint Permit Application, the technical report provided by ODOT, and the result of the consultation process. The consultation process has involved correspondence, conference calls, and other communications to obtain additional information and to clarify the permit and technical report.

The objective of this Opinion is to determine whether the action to stabilize the stream bank and place riprap is likely to jeopardize the continued existence of the UWR chinook salmon and steelhead, or destroy or adversely modify critical habitats.

1.2 Proposed Action

The proposed action is the repair and reinforcement of the bank of Maxfield Creek which is actively eroding into a road embankment at the end of a bridge. The erosion is threatening a bridge abutment and causing an unsafe situation for the traveling public. The proposed action will place an estimated 300 cubic yards of fill along the southeast bank of Maxfield Creek.

About 100 yards of riprap will be placed below the ordinary high water elevation; part of this will be placed in an excavated trench at the toe of the bank. Riprap will be hand placed rather than ends dumped. At least three trees with rootwads attached will be keyed into the bank through the riprap. The rootwads will protrude into the stream to provide in-stream habitat and redirect the creek back to its original channel. A driven steel wall, requiring minimal excavation, will be placed landward of the riprap near the bridge to provide additional support to the embankment. Willow cuttings will be placed under and within the riprap. Existing pieces of concrete will be removed from the creek bank and channel. The work area will be isolated and any stranded fish removed before in-water work.

An access road above the 2-year flood elevation is needed. The road will be built on a geotextile fabric to minimize ground disturbance. The road will be removed and the disturbed area reseeded with a native mix upon completion of the project. Part of the area to be disturbed is residential lawn. This area will be reseeded with a mix chosen by the owner. Erosion controls will be put into place before any excavation. No trees will be cut, though limb removal may be necessary, to build the project or the access road. Vegetation will not be grubbed. It is estimated that the project will take about two weeks to build. Equipment staging and refueling will be done at the local school nearby.

1.3 Biological Information and Critical Habitat

The NMFS listed UWR steelhead as a threatened species under the ESA on March 25, 1999 (64 FR 14517) and listed UWR chinook salmon as threatened on March 24, 1999 (64 CFR 14308). Protective regulations were adopted under section 4(d) of the ESA on July 10, 2000 (65 FR 42422). Biological information on UWR chinook salmon may be found in the Status Review of Chinook Salmon from Washington, Idaho, Oregon, and California (Myers et al. 1998) and for UWR steelhead in the Status Review of West Coast Steelhead from Washington, Idaho, Oregon, and California (Busby et al. 1996). Critical habitats were designated for both species on February 16, 2000 (65 FR 7764). The designation includes all waterways, substrates, and adjacent riparian zones below longstanding, naturally impassable barriers. The adjacent riparian zone is also included in the designation. This zone is defined as the area that provides the following functions: shade, sediment, nutrient/chemical regulation, streambank stability, and input of large woody debris/organic matter.

Limited information exists for chinook and steelhead populations in Maxfield Creek. Numbers are expected to be low with minimal production. The project-affected reach of the creek serves primarily as a migration corridor for adult fish returning to spawn, and downstream out migrations of juvenile fish returning to the sea during smoltification. Minimal steelhead rearing may occur in the area due to warm water temperatures and it being a low water year. This portion of Maxfield Creek is primarily used as a migration corridor.

The preferred Oregon Department of Fish and Wildlife (ODFW) in-water work window for this stream is July 1 to September 30. At this time it is anticipated that an extension of that window

to October 15 will be necessary to complete the project. ODFW has verbally concurred with this extension.

1.4 Evaluating Proposed Actions

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations). NMFS must determine whether the action is likely to jeopardize the listed species and/or whether the action is likely to destroy or adversely modify critical habitats. This analysis involves: (1) Defining the biological requirements and current status of the listed species; and (2) evaluating the relevance of the environmental baseline to the species' current status.

Subsequently, NMFS evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NMFS must consider the estimated level of mortality attributable to: (1) Collective effects of the proposed or continuing action; (2) the environmental baseline; and (3) any cumulative effects. This evaluation must take into account measures for survival and recovery specific to the listed salmonid's life stages that occur beyond the action area. If NMFS finds that the action is likely to jeopardize the listed species, NMFS must identify reasonable and prudent alternatives for the action.

Furthermore, NMFS evaluates whether the action, directly or indirectly, is likely to destroy or adversely modify the listed species' designated critical habitat. The NMFS must determine whether habitat modifications appreciably diminish the value of critical habitat for both survival and recovery of the listed species. The NMFS identifies those effects of the action that impair the function of any essential element of critical habitat. The NMFS then considers whether such impairment appreciably diminishes the habitat's value for the species' survival and recovery. If NMFS concludes that the action will destroy or adversely modify critical habitat, it must identify any reasonable and prudent alternatives available.

For the proposed action, NMFS' jeopardy analysis considers direct or indirect mortality of fish attributable to the action. NMFS' critical habitat analysis considers the extent to which the proposed action impairs the function of essential biological elements necessary for juvenile and adult migration and rearing of UWR chinook salmon and steelhead.

1.4.1. Biological Requirements

The first step NMFS takes when applying the ESA section 7(a)(2) to listed salmon is to define the species' biological requirements that are most relevant to each consultation. NMFS also considers the current status of the listed species taking into account population size, trends, distribution and genetic diversity. To assess to the current status of the listed species, NMFS starts with the determinations made in its decision to list UWR chinook salmon and steelhead for

ESA protection, and also considers new data available that is relevant to the determination (Myers et al, 1998).

The relevant biological requirements are those necessary for UWR chinook salmon and steelhead to survive and recover to a naturally reproducing population level to make protection under the ESA unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance their capacity to adapt to various environmental conditions, and allow them to become self-sustaining in the natural environment.

For this consultation, the biological requirements are improved habitat characteristics that function to support successful migration and rearing. The current status of the UWR chinook salmon and steelhead, based upon their risk of extinction, has not significantly improved since the species was listed and, in some cases, their status may have worsened. Individual environmental factors include water quality, substrate, water temperature, cover/shelter, and riparian vegetation.

1.4.2 Environmental Baseline

The proposed action will occur within the range of UWR chinook salmon and steelhead. The current range-wide status of the identified ESU's may be found in Myers et al. (1998) and Busby et al. (1996). The action area is defined as all areas to be affected directly or indirectly by the Federal action and not merely the project area involved in the proposed action (50 CFR 404.02). The direct effects occur at the project site and may extend upstream or downstream based on the potential for impairing fish passage, hydraulic functions and process, stream channel modification, increase in sedimentation and turbidity and pollutant discharge, and the extent of riparian habitat modifications. Indirect affects may occur throughout the watershed where actions described in this Opinion lead to additional activities or affect ecological functions contributing to stream degradation. As such, the action area for the proposed project is defined as the streambed and streambank of Maxfield Creek, extending upstream to the edge of disturbance and downstream to the end of any visible sediment plume. Other areas of the Maxfield Creek watershed are not expected to be directly or indirectly affected.

Maxfield Creek is not listed on the Oregon Department of Environmental Quality's 303(d) list of water quality limited streams. However, the Environment Protection Agency lists bacteria as a limiting feature for the Luckiamute River. The confluence of Maxfield Creek and the Luckiamute is about 0.4 river miles downstream of the bridge. At the watershed scale the Maxfield system has problems with low summer flows, agriculture, and point and nonpoint source pollution. The dominant land use within the Maxfield Creek watershed is agriculture and timber production, with some residential use. In the project area the streamside vegetation is grassland with mixed deciduous forest stands. Within the boundaries of the project, alder, willow, and a few conifer provide shade, organic input and retention of organic matter, and potentially contribute large woody debris. The stream itself is characterized by an incised

channel with a substrate of silts, coarse sands, gravels and boulders, and generally lacking large woody debris in the project area.

Based on the best available information on the current status of UWR chinook salmon and steelhead range-wide; the population status, trends, and genetics; and the poor environmental baseline conditions within the action area, NMFS concludes that the biological requirements of the identified ESU within the action area are not currently being met. Maxfield Creek has degraded habitat resulting from forestry and agricultural practices, road building, and severe recent flooding. The following habitat indicators are either at risk or not properly functioning within the action area: Temperature, chemical contamination/nutrients, large woody debris, off-channel habitat, refugia, streambank condition, floodplain connectivity, peak/base flows, and disturbance history. Actions that do not maintain or restore properly functioning aquatic habitat conditions would be likely to jeopardize the continued existence of UWR chinook salmon and steelhead.

1.5 Analysis of Effects

1.5.1 Effects of Proposed Action

The effects determination in this Opinion was made using a method for evaluating current aquatic conditions, the environmental baseline, and predicting effects of actions on them (NMFS 1996). The effects of actions are expressed in terms of the expected effect (restore, maintain, or degrade) on aquatic habitat factors in the project area.

The proposed action has the potential to cause the following impacts to UWR chinook and steelhead and designated critical habitat:

1. The use of riprap has the potential to change salmonid migration and rearing behavior. Reduced densities of chinook have been found near riprap-stabilized banks that do not incorporate large woody debris (Beamer and Henderson, 1998). Because root wads are included in the riprap design for this project these effects are expected to be minimized.
2. Excavation to anchor the tree stems and the in-water work needed to dig a toe trench and place the riprap has the potential to increase turbidity in the creek. Localized increases of erosion/turbidity during work area isolation and restoring stream flow will likely displace UWR chinook and other fish in the project area and disrupt normal behavior. These effects are expected to be temporary and localized.
3. Dewatering the project area during the 2 week construction period has the potential to cause lethal and non-lethal impacts. Impacts will be minimized by this work occurring when fish are least likely to be in the area. Upstream fish passage will be prohibited during construction, downstream passage will be maintained. ODFW believes that because of high water temperature and lack of flow in the creek, almost no fish migration would occur during the proposed

construction timeframe occurring (e-mail August 15, Randy Reeve, ODFW to Greg Apke, ODOT).

The effects of these activities on UWR chinook and steelhead and aquatic habitats will be limited by implementing conservation methods and approaches, included in the project design, intended to avoid or minimize impacts. These include:

1. Seeding all disturbed areas with a native seed mix. The mix includes grasses for immediate soil stabilization and trees and shrubs for long-term establishment of riparian habitat and eventual contribution to large woody debris. Willow cuttings will be planted through the rip rap. Upland tree species will be planted on the landward side of the riprap.
2. Vegetation will be removed, if necessary, by cutting at ground level rather than grubbing out of the soil. A fabric will be placed between the ground and the access road to minimize impact of its construction. Though some limbing may be needed, no trees will be cut.
3. Riprap and anchored trees will be placed during the ODFW in-water work window and approved extension of July 1 to October 15, so that the likelihood of fish being present during the work is decreased.
4. Riprap will be placed rather than dumped, and a geotextile fabric will be used before placement of riprap to minimize erosion.
5. Erosion control measures will be installed before construction to minimize any potential for sediment entering the waterway during construction. All sediment containment devices and erosion control devices will be inspected daily during the construction, operation and removal periods, to ensure that the devices are functioning properly. An extensive planting plan will be implemented. All disturbed areas will be seeded and mulched to prevent erosion. The ODOT maintenance crews will maintain absorbent materials on-site sufficient to immobilize any spilled material. All equipment that will be operating to place the riprap must have absorbent diapers installed to prevent leakage of oil-based compounds into the waterway and equipment will be inspected daily for leaks. No fuel, oil or lubricants will be stored or transferred within 165 feet of the waterway. Spill containment booms will be maintained on-site at all times during construction and/or staging of equipment or fueling supplies.

1.5.2 Effects on Critical Habitat

NMFS designates critical habitat based on physical and biological features that are essential to the listed species. Essential features for designated critical habitat include substrate, water quality, water quantity, water temperature, food, riparian vegetation, access, water velocity, space and safe passage. Critical habitat for UWR chinook salmon and steelhead consists of all waterways below naturally-impassable barriers, including the action area. The adjacent riparian zone is also included in the designation. This zone is defined as the area that provides the

following functions: Shade, sediment, nutrient or chemical regulation, streambank stability, and input of large woody debris or organic matter.

The proposed actions will affect critical habitat. In the short term, temporary increase of sediments and turbidity and disturbance of riparian habitat is expected. In the long term, a slow recovery process will occur as the plants mature. Also, habitat complexity will be increased at the site by the addition of the root wads. The NMFS does not expect that these actions will diminish the value of the habitat for survival and recovery of UWR chinook salmon and steelhead.

1.5.3 Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." The action area has been defined as the streambed and streambank of Maxfield Creek, extending upstream to the edge of disturbance and downstream to the extent of any visible sediment plume. A wide variety of actions occur within the Maxfield Creek watershed. NMFS is not aware of any significant change in such non-federal activities that are reasonably certain to occur. NMFS assumes that future non-federal activities within the watershed are expected to increase with a projected 34 percent increase in human population over the next 25 years in Oregon (Oregon Department of Administrative Services 1999). Thus NMFS assumes that future private and State actions will continue within the watershed, but at increasingly higher levels as population density climbs.

1.6 Conclusion

NMFS has determined that, based on the available information, the proposed action is not likely to jeopardize the continued existence of continued existence of the UWR chinook salmon and steelhead, or result in destruction or adverse modification of critical habitats. NMFS used the best available scientific and commercial data to apply its jeopardy analysis, when analyzing the effects of the proposed action on the biological requirements of the species compared with the environmental baseline, and cumulative effects. NMFS applied its evaluation methodology (NMFS 1996) to the proposed action and found that it would cause minor, short-term adverse effects to salmonid habitats due to dewatering the work area and completion of the scour protection.

Our conclusions are based on the following considerations: (1) In-water work will occur during an approved extension of the Oregon Department of Fish and Wildlife's (ODFW) preferred work window (July 1 through October 15), which is expected to preclude the presence of UWR chinook salmon and steelhead in the action area due to high water temperatures and low flows; (2) the action area does not provide holding or spawning habitat for adult UWR chinook salmon or steelhead; (3) any increases in sedimentation and turbidity to the lower portion of Maxfield Creek will be short-term and minor in scale and would not change or worsen existing conditions

for stream substrate in the action area; and (4) implementation of an erosion and sediment control plan and a spill prevention plan will minimize the likelihood of incidental take of UWR chinook and steelhead. Further long-term beneficial effects are expected due to the anticipated reduction in sedimentation and turbidity due to scour reduction, and a long-term increase in large woody debris and functional riparian vegetation.

1.7 Reinitiation of Consultation

Consultation must be reinitiated if: (1) The amount or extent of taking specified in the Incidental Take Statement is exceeded, or is expected to be exceeded; (2) new information reveals effects of the action that may affect the listed species in a way not previously considered; (3) the action is modified in a way that causes an effect to the listed species that was not previously considered; or (4) a new species is listed or critical habitat is designated that may be affected by the action (50 CFR 402.16). To reinitiate consultation USCOE should contact the Habitat Conservation Division (Oregon Habitat Branch) of NMFS and reference OSB2001-0223-FEC.

2. INCIDENTAL TAKE STATEMENT

Sections 4(d) and 9 of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering. Harass is defined as actions that create the likelihood of injuring listed species to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. Incidental take is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

An incidental take statement specifies the impact of any incidental taking of endangered or threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

2.1 Amount and Extent of Take

The NMFS anticipates that the action covered by this Opinion has more than a negligible likelihood of resulting in incidental take of UWR chinook salmon and steelhead because of detrimental effects from increased sediment levels (non-lethal) and the potential for direct

incidental take during the placement of riprap in the riparian area and dewatering the work area (lethal and non-lethal).

Effects of actions such as the placement of riprap are largely unquantifiable in the short term, and are not expected to be measurable as long-term harm to habitat features or by long-term harm to chinook salmon or steelhead behavior or population levels. Therefore, although NMFS expects some low level incidental take to occur due to the actions covered by this Opinion, the best scientific and commercial data available are not sufficient to enable NMFS to estimate a specific amount of incidental take to the species itself. In instances such as these, the NMFS designates the expected level of take as "unquantifiable." Based on the information in the permit application and technical report, NMFS anticipates that an unquantifiable amount of incidental take could occur as a result of the actions considered in this biological opinion. The extent of the take is limited to UWR chinook and UWR steelhead within the action area. Isolation of the in-water work area necessary to complete the scour protection project may also result in incidental take of up to 20 juvenile UWR chinook and 20 UWR steelhead. In this Opinion, NMFS determined that this level of anticipated take is not likely to result in jeopardy to the species.

Incidental take of UWR chinook and UWR steelhead attributable to these actions, including take of up to 20 UWR chinook and 20 UWR steelhead during dewatering, will be considered authorized if the actions are carried out as described in sections 1.2 (Proposed Action), 2.2 (Reasonable and Prudent Measures), and 2.3 (Terms and Conditions) of this Opinion.

2.2 Reasonable and Prudent Measures

The measures described below are non-discretionary. They must be implemented so that they become binding conditions in order for the exemption in section 7(a)(2) to apply. The USCOE has the continuing duty to regulate the activities covered in this incidental take statement. If the USCOE fails to require the applicants to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, or fails to retain the oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse. The NMFS believes that activities carried out in a manner consistent with these reasonable and prudent measures, except those otherwise identified, will not necessitate further site-specific consultation. Activities which do not comply with all relevant reasonable and prudent measures will require further individual consultation.

The NMFS believes that the following reasonable and prudent measures are necessary and appropriate to minimize the likelihood of take of listed fish resulting from implementation of this Opinion. These reasonable and prudent measures would also minimize adverse effects to designated critical habitat.

1. Minimize the likelihood of incidental take from activities involving temporary access roads, use of heavy equipment, earthwork, site restoration, or that may otherwise involve

in-water work or affect fish passage by avoiding or minimizing disturbance to riparian and aquatic systems.

2. Complete a comprehensive monitoring and reporting program to ensure this biological opinion is meeting its objective of minimizing the likelihood of take from permitted activities.

2.3 Terms and Conditions

To be exempt from the prohibitions of section 9 of the ESA, USCOE must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary. The terms and conditions listed under one category of activity are also terms and conditions of the other category if they would also minimize impacts to salmonids.

1. To implement Reasonable and Prudent Measure #1 (construction) above, the USCOE shall ensure that:
 - a. Minimum area. Construction impacts will be confined to the minimum area necessary to complete the project.
 - b. In-water work. All work within the active channel or that could potentially contribute sediment or toxicants to downstream fish-bearing systems, will be completed within the ODFW approved in-water work period.¹
 - c. Work period extensions. Extensions of the in-water work period, including those for work outside the wetted perimeter of the stream but below the ordinary high water mark must be approved by biologists from NMFS.
 - d. Isolation of in-water work area. During in-water work, ensure that the work area is well isolated from the active flowing stream within a cofferdam (made out of sandbags, sheet pilings, inflatable bags, etc.), or similar structure, to minimize the potential for sediment entrainment.
 - i. Fish screen. Any water intake structure authorized under this Opinion must have a fish screen installed, operated and maintained according to NMFS' fish screen criteria.²
 - ii. Seine and release. Before and intermittently during pumping, attempts will be made to seine and release fish from the work isolation area as is prudent to minimize risk of injury.

¹ Oregon Department of Fish and Wildlife, *Guidelines for Timing of In-Water Work to Protect Fish and Wildlife Resources*, 12 pp (June 2000)(identifying work periods with the least impact on fish)(http://www.dfw.state.or.us/ODFWhtml/InfoCntrHbt/0600_inwtrguide.pdf).

² Nation Marine Fisheries Service, *Juvenile Fish Screen Criteria* (revised February 16, 1995) and *Addendum: Juvenile Fish Screen Criteria for Pump Intakes* (May 9, 1996)(guidelines and criteria for migrant fish passage facilities, and new pump intakes and existing inadequate pump intake screens) (<http://www.nwr.noaa.gov/1hydroweb/hydroweb/ferc.htm>).

- (1) Seining will be conducted by or under the supervision of a fishery biologist experienced in such efforts. All staff working with the seining operation must have the necessary knowledge, skills, and abilities to ensure the safe handling of all ESA-listed fish.
 - (2) ESA-listed fish must be handled with extreme care and kept in the water to the maximum extent possible during seining and transfer procedures. The transfer of ESA-listed fish must be conducted using a sanctuary net that holds water during transfer, whenever necessary to prevent the added stress of an out-of-water transfer.
 - (3) Seined fish must be released as near as possible to capture sites.
 - (4) The transfer of any ESA-listed fish from the applicant to third-parties other than NMFS personnel requires written approval from the NMFS.
 - (5) The applicant must obtain any other Federal, state, and local permits and authorizations necessary to conduct the seining activities.
 - (6) The applicant must allow the NMFS or its designated representative to accompany field personnel during the seining activity, and allow such representative to inspect the applicant's seining records and facilities.
 - (7) A description of any seine and release effort will be included in a post project report with the following information: The name and address of the supervisory fish biologist; methods used to isolate the work area and minimize disturbances to ESA-listed species; stream conditions before and following placement and removal of barriers; the means of fish removal; the number of fish removed by species; the condition of all fish released, and any incidence of observed injury or mortality.
- iii. If the fish salvaging aspect of this project requires the use of electrofishing equipment to capture fish, it must be accomplished as follows (NMFS 1998):
- (1) Electrofishing may not occur near listed adults in spawning condition or near redds containing eggs.
 - (2) Equipment must be in good working condition. Operators must go through the manufacturer's preseason checks, follow all provisions, and record major maintenance work in a log.
 - (3) A crew leader having at least 100 hours of electrofishing experience in the field using similar equipment must train the crew. The crew leader's experience must be documented and available for confirmation; such documentation may be a logbook. The training must occur before an inexperienced crew begins any

electrofishing; it must also be conducted in waters that do not contain listed fish.

- (4) Measure conductivity and set voltage as follows:

<u>Conductivity (umhos/cm)</u>	<u>Voltage</u>
Less than 100	900 to 1100
100 to 300	500 to 800
Greater than 300	150 to 400

- (5) Direct current (DC) must be used at all times.

- (6) Each session must begin with pulse width and rate set to the minimum needed to capture fish. These settings should be gradually increased only to the point where fish are immobilized and captured. Start with pulse width of 500us and do not exceed 5 milliseconds. Pulse rate should start at 30Hz and work carefully upwards. *In general*, pulse rate should not exceed 40 Hz, to avoid unnecessary injury to the fish.

- (7) The zone of potential fish injury is 0.5m from the anode. Care should be taken in shallow waters, undercut banks, or where fish can be concentrated because in such areas the fish are more likely to come into close contact with the anode.

- (8) The monitoring area must be worked systematically, moving the anode continuously in a herringbone pattern through the water. Do not electrofish one area for an extended period.

- (9) Crew members must carefully observe the condition of the sampled fish. Dark bands on the body and longer recovery times are signs of injury or handling stress. When such signs are noted, the settings for the electrofishing unit may need adjusting. Sampling must be terminated if injuries occur or abnormally long recovery times persist.

- (10) Whenever possible, a block net must be placed below the area being sampled to capture stunned fish that may drift downstream.

- (11) The electrofishing settings must be recorded in a logbook along with conductivity, temperature, and other variables affecting efficiency. These notes, with observations on fish condition, will improve technique and form the basis for training new operators.

- iv. Water pumped from the work isolation area will be discharged into an upland area providing over ground flow before returning to the creek. Discharge will not occur in a way that causes erosion.

- e. Fish passage. Work will not inhibit passage of any adult or juvenile salmonid species downstream throughout the construction period; nor upstream or downstream after project completion.

- f. Pollution and erosion control plan. A Pollution and Erosion Control Plan (PECP) will be developed for each authorized project to prevent point-source pollution

related to construction operations. The PECP will contain the pertinent elements listed below and meet requirements of all applicable laws and regulations:

- i. Methods that will be used to prevent erosion and sedimentation associated with equipment and material storage sites, fueling operations and staging areas.
 - ii. Methods that will be used to confine, remove, and dispose of excess concrete, cement and other mortars or bonding agents, including washout facilities.
 - iii. A description of the hazardous products or materials that will be used, including inventory, storage, handling, and monitoring.
 - iv. A spill containment and control plan with notification procedures, specific clean up and disposal instructions for different products, quick response containment and clean up measures that will be available on the site, proposed methods for disposal of spilled materials, and employee training for spill containment.
 - v. Measures that will be taken to prevent construction debris from falling into any aquatic habitat. Any material that falls into a stream during construction operations will be removed so that it has a minimum impact on the streambed and water quality.
 - vi. Project actions will follow all provisions of the Clean Water Act (40 CFR Subchapter D) and DEQ's provisions for maintenance of water quality standards. Toxic substances will not be introduced above natural background levels in waters of the State in amounts which may be harmful to aquatic life, and any turbidity caused by this project will not exceed DEQ water quality standards, as described in Oregon Administrative Rules Division 41.
- g. Preconstruction activities. Before significant alteration of the action area, the following actions will be accomplished.
- i. Boundaries of the clearing limits associated with site access and construction are flagged to prevent ground disturbance of critical riparian vegetation, wetlands and other sensitive sites beyond the flagged boundary.
 - ii. The following erosion control materials are onsite:
 - (1) A supply of erosion control materials (e.g., silt fence and straw bales) is on hand to respond to sediment emergencies. Sterile straw bales will be used when available to prevent introduction of weeds.
 - (2) An oil absorbing, floating boom is available on-site during all phases of construction whenever surface water is present.
 - iii. All temporary erosion controls (e.g., straw bales, silt fences) are in-place and appropriately installed downslope of project activities within the riparian area. Effective erosion control measures will be in-place at all

- times during the contract, and will remain and be maintained until permanent erosion control measures are effective.
- h. Heavy Equipment. Heavy equipment use will be restricted as follows.
 - i. When heavy equipment is required, the applicant will use equipment having the least impact (e.g., minimally sized, rubber tired).
 - ii. Heavy equipment will be fueled, maintained and stored as follows.
 - (1) All equipment that is used for instream work will be cleaned before operations below the bankfull elevation. External oil and grease will be removed, along with dirt and mud. No untreated wash and rinse water will be discharged into streams and rivers without adequate treatment.
 - (2) Place vehicle staging, maintenance, refueling, and fuel storage areas at least 150 feet horizontal distance from any stream.
 - (3) All vehicles operated within 150 feet of any stream or water body will be inspected daily for fluid leaks before leaving the vehicle staging area. Any leaks detected will be repaired before the vehicle resumes operation.
 - (4) When not in use, vehicles will be stored in the vehicle staging area.
 - i. Site preparation. Site preparation is completed in the following manner, including removal of stream materials, topsoil, surface vegetation and major root systems.
 - i. Any instream large wood or riparian vegetation moved or altered during construction will stay on site or be replaced with a functional equivalent.
 - ii. Tree removal will be mitigated for onsite by a 2:1 replanting ratio.
 - iii. Whenever the project area is to be revegetated or restored, native channel material, topsoil and native vegetation removed for the project should be stockpiled for redistribution on the project area.
 - j. Earthwork. Earthwork, including drilling, excavation, filling and compacting, is completed in the following manner:
 - i. Boulders, rock, woody materials and other natural construction materials used for the project must be obtained from outside the riparian area.
 - ii. During excavation, native streambed materials will be stockpiled above the bankfull elevation for later use.
 - iii. Material removed during excavation will only be placed in locations where it cannot enter streams or other water bodies.
 - iv. All exposed or disturbed areas will be stabilized to prevent erosion.
 - (1) Areas of bare soil within 150 feet of waterways, wetlands or other sensitive areas will be stabilized by native seeding,³ mulching, and placement of erosion control blankets and mats, if applicable, quickly as reasonable after exposure, but within seven days.

³ By Executive Order 13112 (February 3, 1999), Federal agencies are not authorized to permit, fund or carry out actions that are likely to cause, or promote, the introduction or spread of invasive species. Therefore, only native vegetation that is indigenous to the project vicinity, or the region of the state where the project is found, shall be used.

- (2) All other areas will be stabilized quickly as reasonable, but within 14 days of exposure.
 - (3) Seeding outside the growing season will not be considered adequate for permanent stabilization.
 - v. All erosion control devices will be inspected during construction to ensure that they are working adequately.
 - (1) Erosion control devices will be inspected daily during the rainy season, weekly during the dry season, monthly on inactive sites.
 - (2) If inspection shows that the erosion controls are ineffective, work crews will be mobilized immediately, during working and off-hours, to make repairs, install replacements, or install additional controls as necessary.
 - (3) Erosion control measures will be judged ineffective when turbidity plumes are evident in waters occupied by listed salmonids during any part of the year.
 - vi. If soil erosion and sediment resulting from construction activities is not effectively controlled, the engineer will limit the amount of disturbed area to that which can be adequately controlled.
 - vii. Sediment will be removed from sediment controls once it has reached 1/3 of the exposed height of the control. Whenever straw bales are used, they will be staked and dug into the ground 5 inches (12 cm). Catch basins will be maintained so that no more than 6 inches (15 cm) of sediment depth accumulates within traps or sumps.
 - viii. Sediment-laden water created by construction activity will be filtered before it leaves the right-of-way or enters a stream or other water body. Silt fences or other detention methods will be installed as close as reasonable to culvert outlets to reduce the sediment entering aquatic systems.
- k. Site restoration. Site restoration and cleanup, including protection of bare earth by seeding, planting, mulching and fertilizing, is done in the following manner.
 - i. All damaged areas will be restored to pre-work conditions including restoration of original streambank lines, and contours.
 - ii. All exposed soil surfaces, including construction access roads and associated staging areas, will be stabilized at a finished grade with mulch, native herbaceous seeding, and native woody vegetation before October 1. On cut slopes steeper than 1:2, a tackified seed mulch will be used so that the seed does not wash away before germination and rooting occurs. In steep locations, a hydro-mulch will be applied at 1.5 times the normal rate.
 - iii. Disturbed areas will be planted with native vegetation specific to the project vicinity or the region of the state surrounding the action area, and will comprise a diverse assemblage of woody and herbaceous species.
 - iv. Plantings will be arranged randomly within the revegetation area.
 - v. All plantings will be completed before April 15.

- vi. No herbicide application will occur within 300 feet of any stream channel as part of this permitted action. Mechanical removal of undesired vegetation and root nodes is permitted.
- vii. No surface application of fertilizer will be used within 50 feet of any stream channel as part of this permitted action.
- viii. Fencing will be installed as necessary to prevent access to revegetated sites by livestock or unauthorized persons.
- ix. Plantings will achieve an 80 percent survival success after three years.
 - (1) If success standard has not been achieved after three years, the applicant will submit an alternative plan to the USCOE. The alternative plan will address temporal loss of function.
 - (2) Plant establishment monitoring will continue and plans will be submitted to the USCOE until site restoration success has been achieved.

2. To implement Reasonable and Prudent Measure #2 (monitoring) above, the USCOE shall ensure that:

- a. Within 30 days of completing the project, the applicant will submit a monitoring report to the USCOE describing the applicant's success meeting their permit conditions. This report will consist of the following information.
 - i. Project identification.
 - (1) Permit number;
 - (2) project name;
 - (3) project location by 5th field hydrological unit code (HUC) and latitude and longitude;
 - (4) starting and ending dates for work performed under the permit; and
 - (5) the USCOE contact person.
 - ii. Isolation of in-water work area. All projects involving isolation of in-water work areas must include a report of any seine and release and/or electrofishing activity including:
 - (1) The name and address of the supervisory fish biologist;
 - (2) methods used to isolate the work area and minimize disturbances to ESA-listed species;
 - (3) stream conditions before and following placement and removal of barriers;
 - (4) the means of fish removal;
 - (5) the number of fish removed by species;
 - (6) the location and condition of all fish released; and
 - (7) any incidence of observed injury or mortality.
 - iii. Pollution and erosion control. A summary of pollution and erosion control inspection reports, including descriptions of any failures experienced with erosion control measures, efforts made to correct them and a description of any accidental spills of hazardous materials.

- iv. Site restoration. Documentation of the following conditions:
 - (1) Finished grade slopes and elevations.
 - (2) Log and rock structure elevations, orientation, and anchoring, if any.
 - (3) Planting composition and density.
 - (4) A plan to inspect and, if necessary, replace failed plantings and structures for five years.
- v. A narrative assessment of the project's effects on natural stream function.
- vi. Photographic documentation of environmental conditions at the project site before, during and after project completion.
 - (1) Photographs will include general project location views and close-ups showing details of the project area and project, including pre- and post-construction.
 - (2) Each photograph will be labeled with the date, time, photo point, project name, the name of the photographer, and a comment describing the photograph's subject.
 - (3) Relevant habitat conditions include characteristics of channels, streambanks, riparian vegetation, flows, water quality, and other visually discernable environmental conditions at the project area, and upstream and downstream of the project.
- b. If a dead, injured, or sick endangered or threatened species specimen is found, initial notification must be made to the National Marine Fishery Service Law Enforcement Office, Vancouver Field Office, 600 Maritime, Suite 130, Vancouver, Washington 98661; phone: 360/418-4246. Care should be taken in handling sick or injured specimens to ensure effective treatment and care or the handling of dead specimens to preserve biological material in the best possible state for later analysis of cause of death. With the care of sick or injured endangered and threatened species or preservation of biological materials from a dead animal, the finder has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence intrinsic to the specimen is not disturbed unnecessarily.
- c. Monitoring reports will be submitted to:

National Marine Fisheries Service
Oregon Habitat Branch
Attn: OSB2001-0223
525 NE Oregon Street
Portland, OR 97232

3. ESSENTIAL FISH HABITAT

3.1 Background

The objective of the Essential Fish Habitat (EFH) consultation is to determine whether the proposed action may adversely affect designated EFH for relevant species, and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH resulting from the proposed action.

3.2 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), requires the inclusion of EFH descriptions in Federal fishery management plans. In addition, the MSA requires Federal agencies to consult with NMFS on activities that may adversely affect EFH.

EFH means "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity" (Magnuson-Stevens Act section 3). For the purposes of interpreting the definition of essential fish habitat: 'Waters' include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; 'substrate' includes sediment, hard bottom, structures underlying the waters, and associated biological communities; 'necessary' means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding or growth to maturity" covers a species' full life cycle (50CFR600.110).

Section 305(b) of the Magnuson-Stevens Act (16 U.S.C. 1855(b)) requires that:

- Federal agencies must consult with NMFS on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH;
- NMFS shall provide conservation recommendations for any Federal or State activity that may adversely affect EFH;
- Federal agencies shall, within 30 days after receiving conservation recommendations from NMFS, provide a detailed response in writing to NMFS regarding the conservation recommendations. The response shall include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the conservation recommendations of NMFS, the Federal agency shall explain its reasons for not following the recommendations.

The Magnuson-Stevens Act requires consultation for all actions that may adversely affect EFH, and does not distinguish between actions within EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside

EFH, such as upstream and upslope activities, that may have an adverse effect on EFH. Therefore, EFH consultation with NMFS is required by Federal agencies undertaking, permitting, or funding activities that may adversely affect EFH, regardless of its location.

3.3 Identification of Essential Fish Habitat

The Pacific Fisheries Management Council (PFMC) has designated EFH for three species of Pacific salmon: chinook (*Oncorhynchus tshawytscha*); coho (*O. kisutch*); and Puget Sound pink salmon (*O. gorbuscha*) (PFMC 1999). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC), and longstanding, naturally-impassable barriers (i.e., natural waterfalls in existence for several hundred years). Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the Pacific Coast Salmon Plan (PFMC 1999). Assessment of potential adverse effects to these species' EFH from the proposed action is based on this information.

3.4 Proposed Action

The proposed actions are detailed above in Section 1.2, Proposed Action. The action area for the proposed project is defined as the streambed and streambank of Maxfield Creek extending upstream to the edge of disturbance and downstream to the end of any visible sediment plume. This area has been designated as EFH for various life stages of chinook salmon.

3.5 Effect of the Proposed Action

As described in detail in Section 1.5, Analysis of Effects, the proposed activities may result in detrimental short-term adverse effects to a variety of habitat parameters. The Maxfield Creek Scour Protection project is not likely to adversely affect the distribution and abundance of adult or juvenile coho salmon or chinook salmon. The proposed action will result in short-term impacts to salmonid habitat through increases in sedimentation and turbidity, and alteration of instream habitats at the project site. Information submitted in the USCOE Permit Application and in the ODOT Technical Services Technical Report is sufficient for NMFS to conclude that the effects of the proposed actions are likely to adversely affect EFH. NMFS also believes that the project design features proposed as an integral part of the actions would avoid, minimize, or otherwise offset potential adverse impacts to designated EFH, as long as terms and conditions as described in the ESA section above are incorporated into the project.

3.6 Conclusion

NMFS believes that the proposed action may adversely affect the EFH for chinook salmon.

3.7 EFH Conservation Recommendations

Pursuant to section 305(b)(4)(A) of the Magnuson-Stevens Act, NMFS is required to provide EFH conservation recommendations for any Federal or state agency action that would adversely affect EFH. The project design criteria proposed by the USCOE, all of the Reasonable and Prudent Measures and the Terms and Conditions contained in Sections 2.2 and 2.3 are applicable to salmon EFH. Therefore, NMFS incorporates each of those measures here as EFH conservation recommendations.

3.8 Statutory Response Requirement

Please note that the Magnuson-Stevens Act (section 305(b)) and 50 CFR 600.920(j) requires the Federal agency to provide a written response to NMFS after receiving EFH conservation recommendations within 30 days of its receipt of this letter. This response must include a description of measures proposed by the agency to avoid, minimize, mitigate or offset the adverse impacts of the activity on EFH. If the response is inconsistent with a conservation recommendation from NMFS, the agency must explain its reasons for not following the recommendation.

3.9 Consultation Renewal

The USCOE must reinitiate EFH consultation with NMFS if the action is substantially revised or new information becomes available that affects the basis for NMFS' EFH conservation recommendations (50 CFR 600.920).

4. LITERATURE CITED

Section 7(a)(2) of the ESA requires biological opinions to be based on "the best scientific and commercial data available." This section identifies the data used in developing this Opinion.

Beamer, E.M., and R.A. Henderson, 1998. Juvenile Salmonid Use of Natural and Hydromodified Bank Habitat in the Mainstem Skagit River, Northwest Washington. Fisheries and Environmental Services for the Swinomish Tribal Community, Upper Skagit and Sauk-Suiattle Indian Tribes.

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- PFMC (Pacific Fishery Management Council). 1999. Amendment 14 to the Pacific Coast Salmon Plan. Appendix A: Description and Identification of Essential Fish Habitat, Adverse Impacts and Recommended Conservation Measures for Salmon. Portland, Oregon.